Investigation Of The Factors That Affect The Success And Satisfaction Of The Students In Distance Education: Sample Of Sakarya University

Metin Çengel
Sakarya University, Dep. of Computer and Instructional Technologies, Faculty of Education, Sakarya, Turkey

Orhan Kocaman
Sakarya University, Department of Foreign Languages Education, Faculty of Education, Sakarya, Turkey

ABSTRACT
As an alternative for face-to-face education (F2F), distance education models are becoming prevalent rapidly nowadays. Internet-based learning is one of the most important parts of Distance Education. Internet-based Distance Education can be briefly defined as a sort of education system which teachers and students can actualize without sharing the same place. This education model is student-centered. In this model, the students are able to learn the lessons given independently from time and space, and able to communicate with the teacher via different means of technology. There are lots of factors affecting the performance of the student positively or negatively in Internet-Based distance education. The success of the students and quality of the provided education can be enhanced by determining which of these factors are dominant.
In this study, we tried to determine the factors which affect the success and satisfaction of the students in Sakarya University Faculty of Management Distance Education. Structural Equation Modeling is utilized to analyse structural relationships.

Key Words: Internet, Internet-based distance education, the factors, success, Structural Equation Modeling

INTRODUCTION
Without a shadow of doubt, education plays a very important role in the development of nations. Education level of the individuals has been the determinant factor which caused civilizations to disappear or allowed civilizations to have ostentatious times. Diverse attitudes and methods in education affected education positively or negatively. There have always been relentless studies in the field and still there are abundant numbers of studies. Technological innovations and inventions in education outclass the previous system and cause new concepts to ensue. Among these innovations, *Distance Education* is in the forefront. Written and printed resources, which were the basic of the classical education, turned into the sources which are easily reached, copied and distributed by anyone thanks to distance education making them accessible via electronic devices. With the integration of the computer-assisted systems to the aforementioned acquisitions, as a result of the fact that multimedia devices and techniques are utilized, educational content is easily accessed quickly with reasonable costs via the Internet and user interaction is increased with the help of new technologies. Distance Education seems to replace classical education nowadays and be considered as a model that supports the classical education.

Technological development caused different concepts to be used in education process. *Internet-based Education, Distance education and Lifelong Learning Program* started to be used frequently as a result of the developments in technology. Web-based education, provided via the Internet, started to be used as an education method in education institutions and many companies. (Khan,2001; Palloff & Pratt, 2001)

It is thought that in web-based distance education models, accessibility, easiness and simplicity of the web-site, consistency between its pages may all contribute to the success of the student. Therefore, it is expected that there is a direct relation between the success of the students and website facilities. Since Web pages have a link to audio and video tools, interactive facilities (conversation, video conference etc.), communication tools (e-mail, list and news group) and other web pages, all these services can be used without any restriction when preparing educational materials. (Yiğit et all, 2000).

Education is defined as a whole of process through which people achieve permanent changes in their mind and behaviors. That is because people achieve new behaviors incessantly. These new behaviors either remove the older behaviors or cause them develop (İşman, 2005, p.48). "Education is a social period that includes a controlled and intentionally chosen environment in order to provide personal development in the most convenient level (Tezcan, 1996). "Education is a social process including an elite and controlled environment and school activities to provide development in the person's social skills and to get optimum personal development (Varış, 1978). In this description, the design of the education-teaching environment and individual development are in the foreground most. Education is the process through which terminal behavioral changes in the person's behaviors are intentionally achieved by self-experiences (Ertürk, 1972, p.12). In this description, the plan and willingness is the most important components. Student ought to learn by self-experience and make intentional changes in himself.

Education is a behavioral improvement and skill, attitude, information gaining process (Alkan, 1997). This description mostly focuses on a student's learning new things and improving himself. Education, with the most common meaning, is a process of growing people up with a specific purpose (Fidan and Erden, 1991). In this description, education is considered as bringing children up according to some target behaviors which have been previously decided. Education is a series of planned actions to provide some certain developments in people's behaviors in accordance with some predetermined principles (Oğuzkan, 1974). This definition focuses on teaching students some predetermined behaviors. Education is the mental development of a person (Bruner, 1964). This description is to some extend different from the others. In this, specific destinations and behaviors represent just the mental development of the student. This development could be affected by social, individual or theoretical basis.

THE STUDY

The purpose of this study is to find out how the students enrolled in the post graduate E-Management program perceive the platform through which they are educated, and to find what factors affect- negatively or positively- their satisfaction and success considering their final grades taken from the Student Affairs database and the logging information of the platform they use.

Since distance education models are getting prevalent quickly in our country, the factors which have negative or positive effects on the academic success and the satisfactions of the students in these programs have been subject of many research and studies.

Contribution of the Study

Nowadays in our country, *Distance and Blended education* are considered as a third education system in the institutions providing Master's degree education. The *Internet*, which is a part of this system, has attracted the attention of universities and become the most preferred way of reaching a mass of population. Using the Internet systematically and suitably in accordance with some particular strategies is going to improve the quality of education and help realize better learning activities.

In this research, web portal, local Internet access technologies, class attendance and social conditions of the students in E-BUSINESS programs are searched together with the availability level of the web portal through which they have been taking their courses and its contribution to their success, and it is hoped that the results will be beneficial for the institutions which plan to provide distance-education in the future.

In this study, the web portals of distance education and websites redesigned and developed in accordance with the opinions of students will also make teaching and learning activities more effective and efficient. So, the future of the system is important in terms of the realization of the students' success and satisfaction.

Statistical Methods for the Study

The factor analysis of the scale has been done in the research. In order to demonstrate the distribution of answers to the demographic questions, Frequency Distribution Analysis has been applied using SPSS software. The *t-test* and *ANOVA test* were used to reveal the difference between different demographic groups' perceptions of the factors that affect their success. To find out the relation between the factors, and to check the correlation and regression, *Structural Equation Modeling* was used.

Study group

The study group consists of the students enrolled at Sakarya University Distance Education department. In this study, a questionnaire was applied to 300 students using data collection method over the Internet. 279 students returned their responses to the researchers.

Research Questionnaire

In this research, students have been consulted on the factors affecting their success positively or negatively. Data collection tool used in the study was developed by the researchers examining the literature and the factors affecting the student success were examined in four dimensions. In the *content* dimension of the scale, questions about demographic structure and features of the students were asked. The students were consulted on by asking 5 questions about the *design* as the first factor, 6 questions about *navigation* as the second factor, 6 questions about *presentation* as the third factor and 8 questions about *pedagogy* as the fourth factor of this dimension.

In the *platform* dimension of the scale, the students were consulted on by asking 6 questions about technology in the first, 7 questions about features in the second, 6 questions about availability in the third factor of this dimension.

Students were also consulted on their behaviors of E-learning platform usage regarding the following situation:

Of the student;

• the number of access per semester,

• the number of forum participation,

• the number of attendance to the courses,

• the number of attendance to the live courses,

• the number of questions they asked to their instructors,

• the number of questions they asked to the administration,

Of the lecturers;

• the number of answers to students,

• the number of responses given by the administration to the students,

• the number of lecturer participation in student forums

• the number of managerial support to the students.

The *interest* dimension of the scale was created using the data taken from the platform diary showing the behaviors of students, academics and administrative staff and after applying some statistical calculations the data was converted into a seven-point *Likert* scale which was also used in the other dimensions.

In terms of student success, grade-point averages of the students were taken from the Student Affairs database and converted into 100 point grading system so that they become usable in the analysis.

In order to find out the satisfaction (or dissatisfaction) of the students about the platform use, they were asked 6 questions to measure their perceptions of satisfaction.

Research Data

The data used in this study were obtained from the log file of website, Student Affairs database and the students in person. Research questionnaire was filled out by 279 students via the Internet in the 2013-2014 academic year. The questionnaire consists of questions such as gender, age of the student, department which the student graduated form, students' employment status, students' number of access to the Internet on a weekly basis and students' computer experience. In dimensions part, the questionnaire consists of questions which can be answered in a seven-point *Likert* scale that ranges from *I totally agree* to *I totally disagree*.

The hypothesis of the research

Hypothesis of the research are listed below;

Hypothesis of the Model

H1: Student perception of the content has an effect on student achievement.

H2: Student perception of the content has an effect on student satisfaction.

H3: Student perception of the Platform (Site) is effective on student achievement.

H4: Student perception of the Platform (Site) is effective on student satisfaction.

H5: Student's interest and Management's concern both have an effect on student success.

H6: Attention of the student and management both have an effect on students' satisfaction.

H7: Student's academic achievement has an impact on student satisfaction.

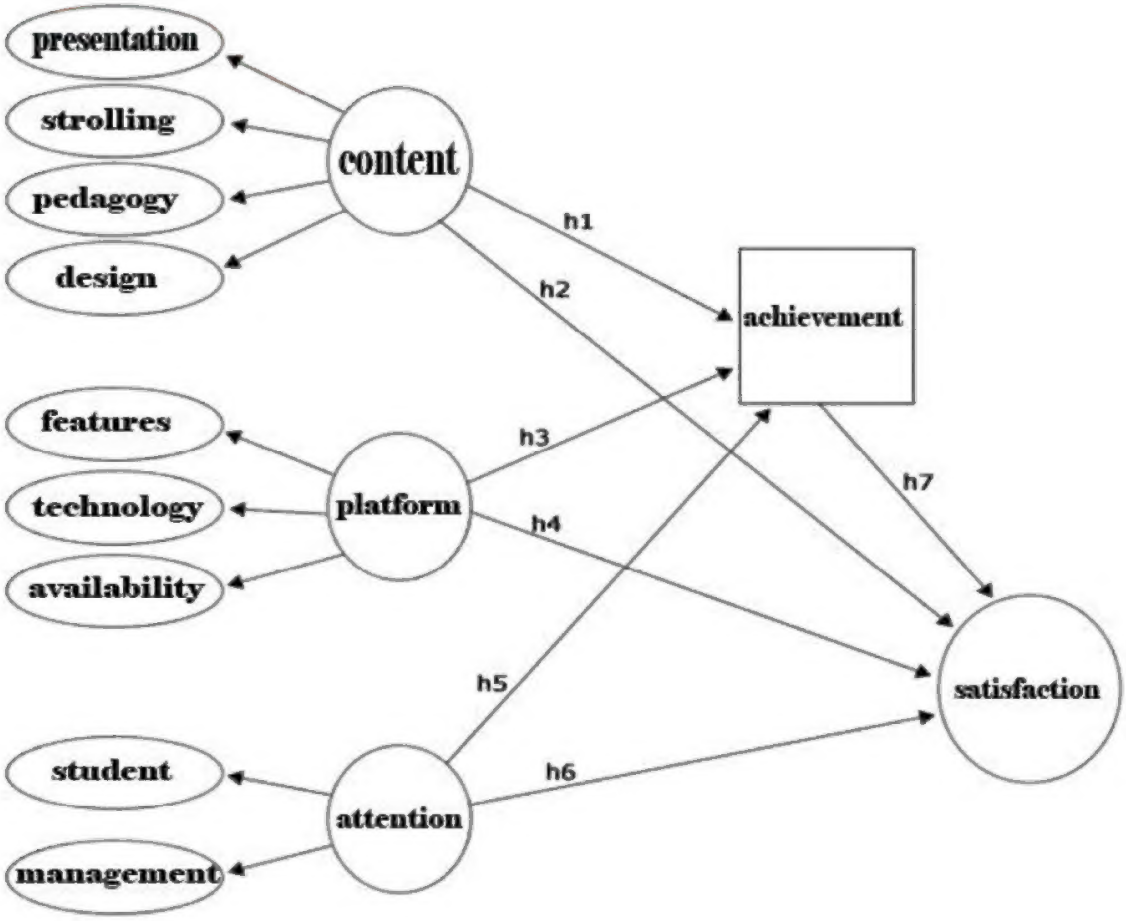

Figure 1: Research Hypothesis (Conceptual Model)

Data Analysis

Under the heading of Descriptive Statistics, demographic characteristics of students, students' views on LMS (Learning Management System), the students' interests from LMS log and students' academic achievements at the end of academic year from the database of Student Affairs are considered.

Reliability and validity analyses of the results obtained from Explanatory and Confirmatory Factor Analyses are presented in the evaluation process of the structural model. The final measurement model and structural equation modeling are discussed at the end of the chapter.

Demographic Features of the Participants

Frequencies of the demographic features of the students who answered the questionnaire are shown in Table 1.

Table 1: Frequency Analysis of Demographic Features of the Participants

Demographic Features of The Participants		**Frequency**	**%**
Gender	**Female**	72	25
	Male	207	75
	Total	279	100
Faculty	**Business-Economics**	187	67
	Engineering	9	3
	Science and Literature	56	20
	Other	27	10
	Total	279	100
Employment Status	**Employed**	247	88
	Unemployed	32	12
	Total	279	100

According to the frequency analysis, it has been observed that 72(25%) of the participants are female and 207(75%) are male.

Frequency analysis according to faculties of participants shows that 187(67%) of the participants are from the School of Economics, 9(3%) are from Engineering Faculty, 56(20%) are from the Faculty of Science and Literature and 27(10%) are from other faculties.

When the occupations of the participants are taken into consideration, it has been observed that 247(88%) are employed and 32(12%) are unemployed.

Scale Analysis

Results of (EFA) Explanatory Factor Analysis of the scale are shown below.

As can be seen in Table-3 and Table-5, EFA values are in convenient limits(Cronbach's Alpha). Results of KMO and Bartlett Sphericity Tests in Table-2 and Table-4 are observed in acceptable values.

Table 2: KMO and Bartlett Sphericity Test Results

KMO Sample Proficiency Test		,862
Bartlett's Sphericity test	Ki Square	7841,496
	sd	351
	Sig.	,000

Factor Analysis of Content Dimension

Table 3: Factor Analysis of Content dimension

Cronbach's Alpha	0,845			
	0,829	0,937	0,928	0,840
Ped3	,755			
Ped1	,745			
Ped2	,710			
Ped8	,687			
Ped4	,662			
Ped7	,649			
Ped5	,631			
Ped6	,619			
Sun3		,820		
Sun5		,797		
Sun6		,791		
Sun1		,764		
Sun4		,711		
Sun2		,605		
Gez2			,845	
Gez4			,768	
Gez6			,752	
Gez3			,730	
Gez1			,709	
Gez5			,668	
Tas2				,882
Tas1				,803
Tas5				,757
Tas4				,672
Tas3				,554

Table 4:KMO and Bartlett Sphericity Test Results

KMO Sample Proficiency Test Results		**,913**
Bartlett's SphericityTest	Ki Square	5397,397
	sd	153
	Sig.	,000

Factor Analysis of Platform Dimension

Table 5: Factor Analysis of Platform Dimension

Cronbach's Alpha	0,901		
	0,849	0,837	0,719
Özel2	,870		
Özel7	,869		
Özel4	,849		
Özel6	,846		
Özel5	,824		
Özel3	,673		
Özel1	,615		
Kul1		,817	
Kul6		,804	
Kul3		,665	
Kul4		,646	
Kul5		,578	
Kul2		,489	
Tek2			,673
Tek4			,646
Tek5			,617
Tek6			,580
Tek3			,523
Tek 1			,457

Main Hypothesis Analysis (Conceptual Framework)

Having observed the desired results from Confirmatory Factor Analysis and Reliability Analysis of each factor and scale model enables the structural equality model to be formed considering the conceptual framework. In Figure 2, the relations between the main model and variables can be seen.

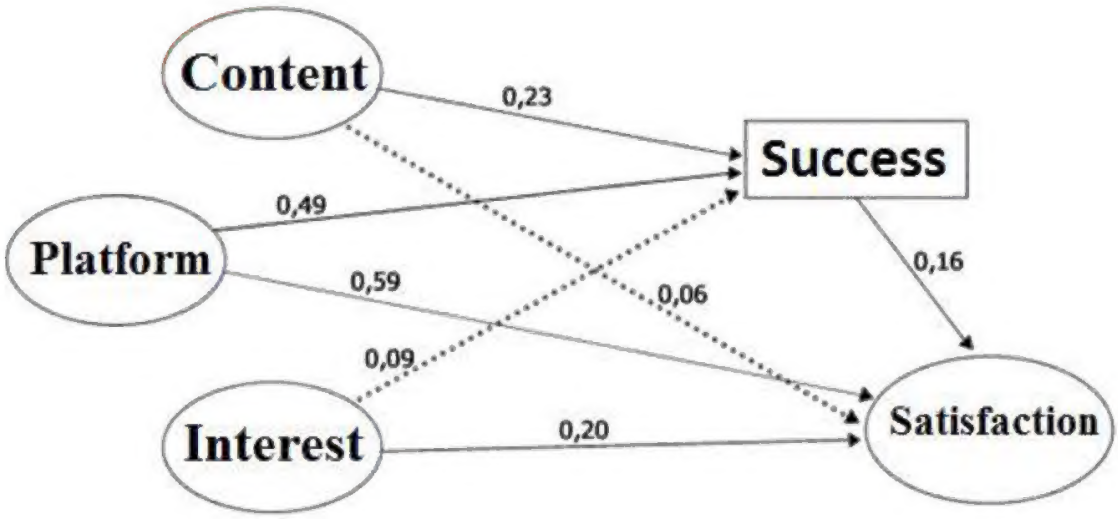

Figure 2: Main Hypothesis Analysis

p<0,001

Dependant Variables	R^2
Success	,64
Satisfaction	,59

Compliance Indices with the Main Model

Table 7: Compliance Indices with the Main Model

Main Model	Compliance Indices					
	χ^2/df	GFI	AGFI	TLI	CFI	RMSEA
	11.7/ 2,1=5.1	,984	,882	,929	,986	,090

According to values from the main model, compliance indices (Table 7) give a good consistency. With reference to the model in Figure 2, it is observed that the factors of platform (0.49), content (0.23), and interest (0.09) have a positive impact on student success. So that, the most powerful factor in the model to explain success is "platform" whereas the weakest factor is "interest". Since the effect of "interest" is <0.1 though being positive, it can be said that ratio of the influence is not within the desired limits. However, it is investigated that the platform (0.49), interest (0.20), and content (0.06) factors have a positive impact on student satisfaction. Therefore, the most powerful factor in the model to explain success is "platform" while the weakest one is "content". Since the effect of "interest" is<0.1 though being positive, it can be said that ratio of the influence is not within the desired limits. It is found that success effects satisfaction (0,16). In this regard, the research hypotheses **H1, H3, H4, H6** and **H7**shown in Figure 1 are confirmed. However, the research hypotheses **H2** and **H5** are not verified.

RESULTS AND RECOMMENDATIONS

In this study, a satisfaction model for the distance education platform (LMS- Learning Management System) is developed by using the perspective of information systems in the creation of conceptual structure. After reviewing the literature, a questionnaire is prepared and applied to the students and a two-dimensional scale is used in this model. The first dimension is "content" (presentation, navigation, design, pedagogy); the second is "platform" (technology, features, usability). Students'perception of satisfaction is also measured by the questionnaire. At the same time, the main model is created based on the model above with the help of students' grade point average taken from the Student Affairs database and student and academic staff behaviours taken from the platform logs.

It can be seen in the study findings that platform's overall structure and student behaviours on the site affect the perception of success and satisfaction.

Navigation factor in content dimension of the model is seen as the dimension with the highest descriptive value (satisfaction1,2; success 0,47)in this dimension. When questions in navigation factor are examined, having site maps, short page loading time and content related images affect what students perceive in a positive way in the presentation of the content.

Presentation factor in content dimension model is seen as the second highest descriptive value (Success 0.64) in terms of success in this dimension; when it is analyzed in terms of satisfaction, pedagogical factor is seen as having the second highest value. When expressions that constitute these factors are analyzed, in the presentation of the material presented to students, it can be said that the using content, based on animation and simulation, increases the success.

Technological tools factor in platform dimension model seems to have high descriptive values in this dimension (Satisfaction, 1.93, Success 2.22). When these factors are deeply examined, it is observed that interactive sections of the site together with modern and dynamic platform design, fast loading, and synchronous and asynchronous education systems have positive impact on students' understanding the lesson.

Specifications factor in platform dimension model has the second highest descriptive value in terms of success in this dimension (Success 0.12); use factor is seen as having the second highest value in terms of satisfaction. When the expressions that constitute these factors are analyzed, we can say that students enjoy using LMS, they do not realize how the time passes during the learning process and they have a perception of feeling themselves happy.

Student factor in interest dimension model is seen as having the highest value in this dimension (Satisfaction, 1.16 Achievement 0.19). When student factor is deeply analyzed, it can be said that the number of forum participation, the number of questions the students ask and the number of course attendance increase satisfaction.

It is seen that platform dimension has the highest descriptive value (Satisfaction, 0.59, Success 0.49) and content dimension has the second highest descriptive value (success 0, 23) in the main model. Trainers and students have the third highest descriptive value (pleasure, 0,20) in the main model. According to these results, it can be said that in terms of student perception, platform is the strongest, content is the second strongest and attention is the third dimension. It is seen that technology is the strongest among the sub dimensions of platform dimension. In this dimension, it can be said that fast loading and synchronous and asynchronous education systems are distinctive factors while student-teacher interaction is a strengthening factor.

It is parallel with some research results in literature that students consider visual elements as a crucial factor that affects their satisfaction of the platform on which the education is provided. For instance, according to Szymanski and Hise (2000) visual elements that are used to design websites are very effective on student satisfaction, and Anand (2007) considers up-to-date information, design and page setup to be parts of website designing and observed that they enhance satisfaction.

RECOMMENDATIONS

In the web pages that undertook the task of interface, implementing educational and visual design should be taken into consideration as well as having interactive and dynamic structure.

Providing simultaneous and variant time communication opportunities through web technologies in distance education is important. While designing *LMS*, characteristics of the target group and the technical infrastructure used by the administrator and the students should be taken into consideration.

In distance education through web technologies, students should be led to collaborative cooperation in learning-centred activities and helped to develop a sense of belonging to a group.

Students should be led to participate in newsgroups and discussion list that develop learners' cognitive and affective competence because utilized internet environment and devices in distance education through web technologies make contribution to learning by doing, presenting information and retaining knowledge.

Increasing the percentages of the exams conducted through the Internet can be suggested in order to lead universities to get learners exercise more effectively via internet.

Upcoming studies about designing learning environments in distance education through web technologies can be put into practice by taking different learning theories into consideration.

While designing learning environment in distance education through web technologies, cooperative learning environments should be created to provide interaction between students.

In distance education through web technologies, students should be provided with opportunities to work cooperatively while solving a problem or studying on a task.

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